

727-5.

May 22 1922

BUFFALO ELECTRIC FANS

*For BLOWING, EXHAUSTING,
VENTILATING, COOLING,
DRYING*

"An Electric Fan for Every Service"

CATALOG No. 490-A

Buffalo Forge Company

BUFFALO, N. Y., U. S. A.

New York
Boston
Philadelphia
Pittsburgh
Los Angeles

Cleveland
Detroit
Chicago
St. Louis

New Orleans
Atlanta
Minneapolis
Denver
Cincinnati

CANADIAN BLOWER & FORGE CO., Ltd.
Kitchener, Ont., Canada
Toronto Montreal Calgary Vancouver St. John Winnipeg

FOREWORD

THE remarkable progress made during the past several years in electrical development heralds the replacing of steam as a prime mover in industry by electricity. This catalogue is devoted entirely to direct connected motor driven Buffalo fans. The service to which these units can be applied reaches into every industry and will be found to meet every requirement.

It is impossible in a bulletin of this size to do more than touch upon the salient features of the many Buffalo fans. Each type of fan is treated fully in a separate bulletin which we will be glad to furnish upon request.

Our engineering staff will make recommendations to meet the particular problem you have in hand.

Yours for the best of fan service,

BUFFALO FORGE COMPANY

Buffalo Electric Fans

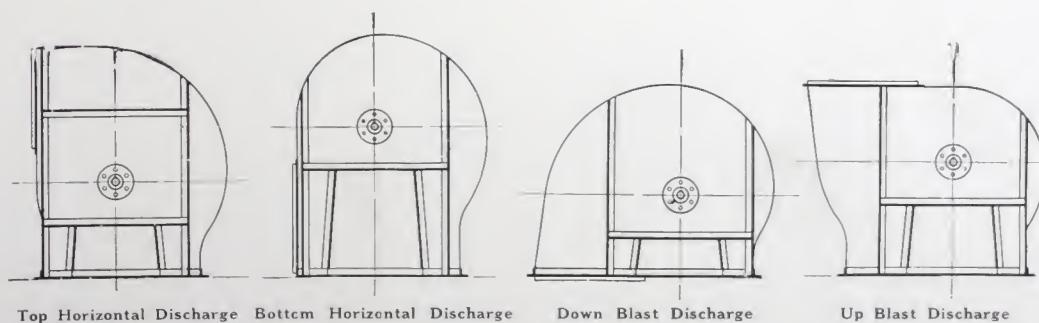
FANS and blowers are divided into two general classes, centrifugal and disc. A centrifugal fan is one that discharges air at right angles to the shaft, the pressure and air movement produced being due to the centrifugal action of rotation. A disc fan is one that produces an air flow in the same direction as the fan shaft and the pressure and air movement is due to the propeller or screw action of the blades. The latter type is used only where a moderate resistance is to be overcome and where space required is not a vital consideration.

In ordering electrically driven fans it is very essential that characteristics of the current be given and also the hand and discharge of the fan be made mention of.

Fans and blowers are designated by the position of the discharge opening and the location of the prime mover as follows:

Top or bottom horizontal discharge, up or down blast and special, the latter being described by giving the angle of discharge from the horizontal. The hand of a fan is determined by the side on which the motor is located. When facing the outlet, the fan is either left or right hand according to whether the motor is on the left or right side as seen from this position, e.g., a right hand fan has the motor on the right side.

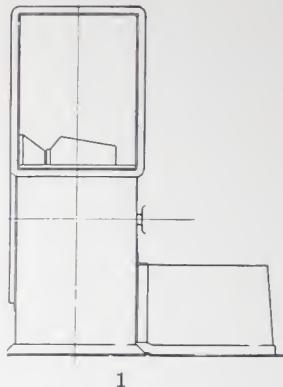
The four cuts below will show very clearly the various discharges.



Buffalo

Motor driven units are made up in four standard types of construction. These are shown in the cuts, and are briefly described as follows:

- 1—Fan wheel is overhung on motor shaft. This makes a very compact unit.
- 2—Fan has single bearing on inlet side of fan housing.
- 3—Fan has two bearings, one on each side of fan housing. This is standard fan construction.
- 4—Fan has two bearings both mounted on subbase or pedestal on opposite side from fan inlet.

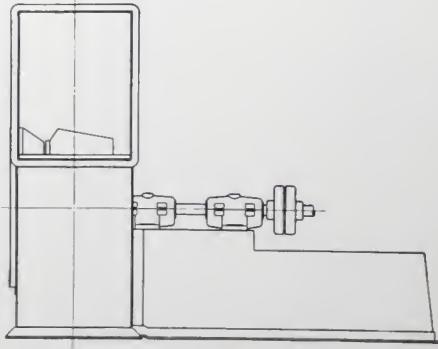
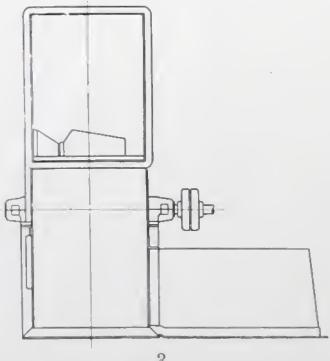
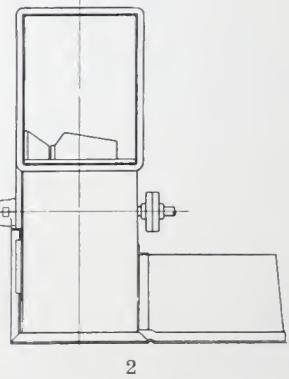


Things to Remember When Ordering Motor Driven Fan Units

There are many different forms of motors, and much time and correspondence can be saved if the following information is included in the request for information:

- 1—Type of current available (direct or alternating).
- 2—Voltage.
- 3—Frequency (for alternating current only).
- 4—Is load continuous or intermittent. (Give length of time load is on and the time it is off).
- 5—Conditions of location—dust, acid fumes, high temperature.
- 6—Nature of work to be done by fan.

Do not limit yourself to just the above information, but bear in mind that the more data contained in your initial request, the better able we will be to serve you to best advantage.

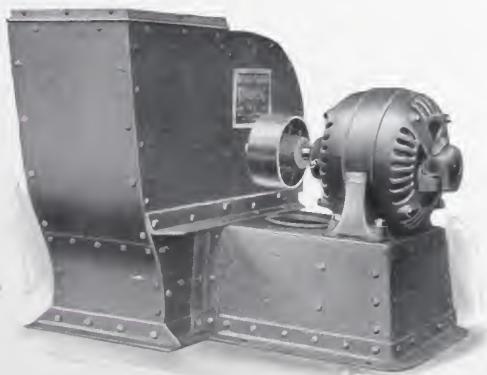


Niagara, Duplex and Turbo Conoidal Fans

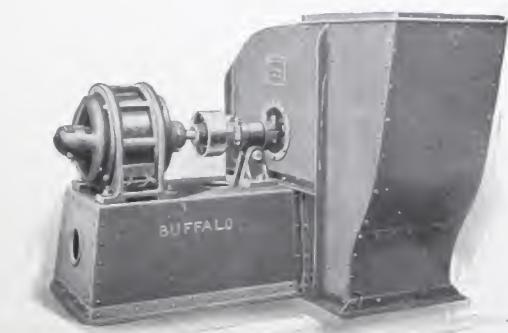
The Buffalo Niagara Conoidal and Duplex Conoidal fans meet the particular requirements of heating and ventilating work. To all outward appearances these fans are identical, both are of the multiblade type and the wheel design is such that the same housing is used for both. The only difference is in the curvature of the blades. The blades of the Niagara Conoidal are of single curvature, whereas those of the Duplex Conoidal are of double curvature. For a general discussion of these two types of fans we must refer the reader to our catalog No. 421 on Buffalo Niagara Conoidal Fans, and No. 422 on Buffalo Duplex Conoidal Fans.

The greater tip curvature gives the Turbo Conoidal fan much higher operating speeds (about 50% above those of the Duplex Conoidal). These speeds permit the use of higher speed standard motors, and thus effect a considerable saving in first cost of prime mover.

The Turbo Conoidal fan finds its largest field of application in forced draft work.



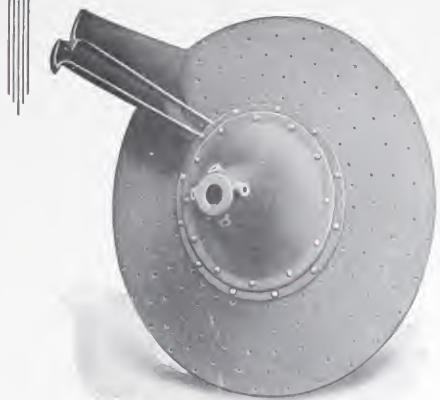
Full Housing Conoidal Fan, Right-Hand Up
Discharge and Electric Motor



Full Housing Conoidal Fan and Motor, Overhung
Blast-Wheel, Left-Hand Up Discharge

"Buffalo"

BUFFALO ELECTRIC FANS



Back Plate, Hub and Blades
Niagara Conoidal Wheel



Turbo Conoidal Fan Wheel Partly Assembled,
Showing Double Curvature of Blades



Duplex Conoidal Fan Wheel Partly Assembled,
Showing Slight Backward Curvature at Tip



Buffalo Turbo Conoidal Stoker Fans at Ford Motor Co., Detroit plant

BUFFALO ELECTRIC FANS

Capacities of Buffalo Turbo Conoidal Fans (Type T) Under Average Working Conditions

70° F. and 29.92" Barometer

Size	Diameter of Blast Wheel Inches	Area of Outlet Square Ft.	½" Static Pressure = 0.288 Ounces			¾" Static Pressure = 0.433 Ounces			1" Static Pressure = 0.577 Ounces			1½" Static Pressure = 0.865 Ounces		
			R.P.M.	Volume Cubic Ft. per Min.	H.P.	R.P.M.	Volume Cubic Ft. per Min.	H.P.	R.P.M.	Volume Cubic Ft. per Min.	H.P.	R.P.M.	Volume Cubic Ft. per Min.	H.P.
2½	14½	0.91	1,115	1,230	0.20	1,368	1,500	0.36	1,580	1,740	0.56	1,935	2,120	1.03
3	17½	1.31	930	1,770	0.28	1,140	2,160	0.52	1,315	2,500	0.81	1,610	3,060	1.48
3½	20	1.79	797	2,410	0.39	976	2,940	0.71	1,130	3,410	1.10	1,380	4,160	2.02
4	22½	2.33	697	3,140	0.51	855	3,850	0.93	987	4,450	1.44	1,208	5,440	2.64
4½	25½	2.95	620	3,980	0.64	760	4,860	1.18	879	5,640	1.82	1,075	6,890	3.34
5	28½	3.64	558	4,910	0.79	684	6,000	1.45	790	6,950	2.25	966	8,500	4.12
5½	31½	4.41	507	5,950	0.96	621	7,270	1.76	719	8,400	2.72	880	10,300	5.00
6	34½	5.25	465	7,070	1.14	570	8,650	2.09	658	10,000	3.24	806	12,230	5.77
6½	36½	6.16	430	8,300	1.33	526	10,200	2.46	608	11,750	3.80	743	14,350	6.96
7	39½	7.14	398	9,630	1.55	488	11,780	2.85	565	13,610	4.40	690	16,650	8.09
7½	42½	8.19	372	11,050	1.78	456	13,500	3.27	526	15,610	5.05	645	19,100	9.27
8	45½	9.33	349	12,590	2.02	428	15,370	3.72	495	17,800	5.75	604	21,750	10.55
8½	48	10.53	328	14,200	2.28	402	17,380	4.21	465	20,100	6.50	569	24,600	11.90
9	51½	11.81	310	15,900	2.56	380	19,450	4.71	440	22,500	7.29	536	27,500	13.35
10	56½	14.58	279	19,650	3.16	342	24,050	5.82	395	27,800	9.00	483	34,000	16.50
11	62½	17.64	254	23,800	3.82	311	29,100	7.05	359	33,700	10.90	439	41,100	19.95
12	68	21.00	232	28,300	4.55	286	34,600	8.40	329	40,100	12.95	402	49,000	23.80
13	73½	24.65	214	33,200	5.34	263	40,600	9.85	304	47,000	15.20	372	57,500	27.90
14	79	28.68	198	38,500	6.20	244	47,100	11.40	282	54,500	17.62	345	66,700	32.35
15	84½	32.80	186	44,200	7.11	228	54,050	13.08	264	62,600	20.20	322	76,500	37.15
16	90½	37.32	174	50,300	8.09	214	61,500	14.90	247	71,200	23.00	302	87,100	42.25
Size	Diameter of Blast Wheel Inches	Area of Outlet Square Ft.	2" Static Pressure = 1.154 Ounces			2½" Static Pressure = 1.442 Ounces			3" Static Pressure = 1.734 Ounces			3½" Static Pressure = 2.019 Ounces		
			R.P.M.	Volume Cubic Ft. per Min.	H.P.	R.P.M.	Volume Cubic Ft. per Min.	H.P.	R.P.M.	Volume Cubic Ft. per Min.	H.P.	R.P.M.	Volume Cubic Ft. per Min.	H.P.
2½	14½	0.91	2,225	2,455	1.59	2,490	2,750	2.22	2,740	3,010	2.94	2,958	3,250	3.69
3	17½	1.31	1,860	3,540	2.29	2,075	3,960	3.19	2,282	4,330	4.23	2,463	4,680	5.30
3½	20	1.79	1,595	4,800	3.12	1,780	5,390	4.35	1,958	5,890	5.75	2,115	6,360	7.22
4	22½	2.33	1,395	6,270	4.08	1,559	7,050	5.68	1,713	7,700	7.52	1,850	8,320	9.45
4½	25½	2.95	1,240	7,950	5.16	1,385	8,920	7.19	1,522	9,740	9.52	1,645	10,550	11.95
5	28½	3.64	1,117	9,800	6.37	1,249	11,000	8.87	1,370	12,000	11.75	1,480	13,000	14.75
5½	31½	4.41	1,015	11,880	7.72	1,133	13,300	10.75	1,245	14,550	14.23	1,345	15,750	17.85
6	34½	5.25	932	14,120	9.18	1,040	15,800	12.75	1,141	17,300	16.92	1,232	18,700	21.25
6½	36½	6.16	860	16,600	10.76	960	18,600	15.00	1,054	20,300	19.85	1,139	22,950	24.90
7	39½	7.14	799	19,250	12.50	891	21,550	17.40	978	23,550	23.05	1,056	25,450	28.90
7½	42½	8.19	745	22,100	14.32	831	24,750	19.95	914	27,050	26.40	987	29,200	33.20
8	45½	9.33	700	25,100	16.30	780	28,150	22.70	856	30,800	30.10	925	33,300	37.75
8½	48	10.53	657	28,400	18.40	736	31,800	25.60	807	34,750	33.95	870	37,550	42.25
9	51½	11.81	621	31,800	20.65	693	35,600	28.75	761	38,950	38.05	822	41,050	47.80
10	56½	14.58	559	39,300	25.50	625	44,000	35.50	685	48,100	47.00	740	52,000	59.00
11	62½	17.64	507	47,450	30.85	567	53,250	42.95	623	58,150	56.90	673	62,900	71.45
12	68	21.00	465	56,500	36.79	520	63,500	51.10	570	69,250	67.79	616	74,950	85.00
13	73½	24.65	430	66,200	43.05	480	74,400	60.00	527	81,300	79.40	569	87,900	99.60
14	79	28.68	399	76,800	50.00	445	86,300	69.55	489	94,300	92.10	528	101,900	115.60
15	84½	32.80	373	88,500	57.40	415	99,000	80.00	456	108,000	105.70	493	117,000	133.00
16	90½	37.32	349	100,500	65.30	390	112,500	90.90	428	123,000	120.50	462	133,000	151.00

Total Pressure is 122.7% of the Rated Static Pressure.

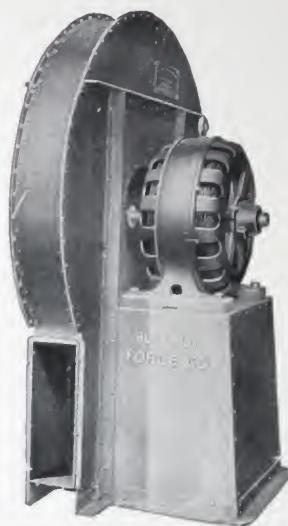
"Buffalo"

BUFFALO ELECTRIC FANS

Steel Plate Pressure Blowers (Type R)

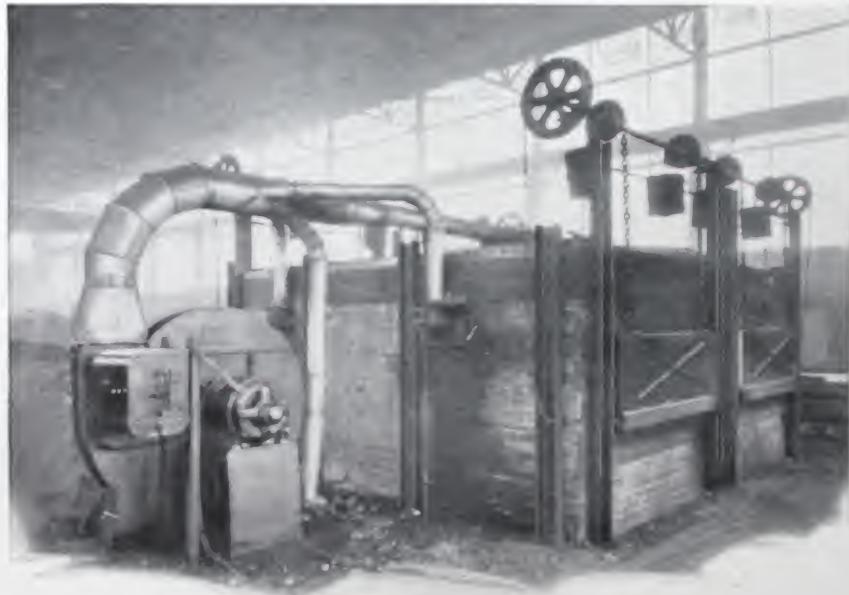


Reinforced Housing and Pedestal Bearings



Fan Wheel Overhung on
Motor Shaft

The picture below shows a Buffalo Steel Plate Pressure Blower (Type R) supplying air to two oil burning heating furnaces.



BUFFALO ELECTRIC FANS

Instead of using a commercial fan for conditions requiring pressures up to one and one half pounds, it is usually possible for us to furnish a Type "R" blower for direct motor drive at less cost and with a saving in power.

These blowers are built to order, not carried in stock nor even of standard sizes, but designed to suit motor speeds, and for definite air capacities and pressures.

Repeated tests show that these special conditions are met with exactness, and with very high efficiencies.

The cuts show various arrangements used, depending on the severity of the service, either with or without pedestal bearings, and with reinforced housings for high pressure blowers.

The table below gives data on a few sizes of Type "R" fans. As they are built to order, these tables only serve to indicate a few of the capacities and speeds to which we can build.



Combination Blower and Exhauster, with Motor between, Serving a Battery of Buffalo Down-Draft Forges

1700 R. P. M.

No of Fan	3			4			5			6			7			8			
A.P.M.	1000		1800	2700			3600			4800			6400						
Pressure ounces	10	12	10	12	10	12	14	10	12	14	10	12	14	10	12	14	10	12	14
Horse Power	5.0	6.0	8.5	10.2	13.5	16.2	19.0	18.0	21.6	25.2	24.0	28.8	33.6	32.0	38.4	44.7			
Wheel Diameter inches	35	38	35	38	35	38	41	36	39	42	36	39	42	37	40	43			

1120 R. P. M.

No of Fan	9			10			No of Fan	11			12			
A.P.M.	8,000		8,000	10,000		10,000	A.P.M.	12,000		12,000	15,000		15,000	
Pressure ounces	12	14	16	12	14	16	Pressure ounces	12	14	16	12	14	16	
Horse Power	48.0	55.8	63.6	60.0	69.7	79.7	Horse Power	72.0	83.8	95.8	90.0	105.0	120.0	
Wheel Diameter inches	58	62	66	58	62	66	Wheel Diameter inches	74	80	85	74	80	85	

"Buffalo"

Standard Electric Mill Exhausters



Motor Driven Standard Mill Exhausters

Buffalo Mill Exhausters are used extensively for conveying and removing shavings, sawdust, grain, cotton, dust from abrasive wheels, bark, smoke, gases, fumes, etc. A special blast wheel which does not catch or hold the material is used for cotton, wool, spent tanbark, and long, stringy shavings.

These exhausters are rugged and substantial machines built to run continuously when handling air filled with material that may be more or less abrasive or corrosive.

Fans of special material and construction are offered for handling gases and fumes from acids, smoke from fires and gases at high temperatures. Extra heavy construction is recommended for handling emery exhaust and other heavy abrasive materials.

Electric mill exhausters may be located without regard to lineshafts, and save the room needed for belts. With our standard arrangement, in which the motor base is attached to, and made a part of the fan housing, the blast wheel being overhung on the motor shaft, the unit is compact and quiet, and the belt losses are saved.

Speed and Power Requirements

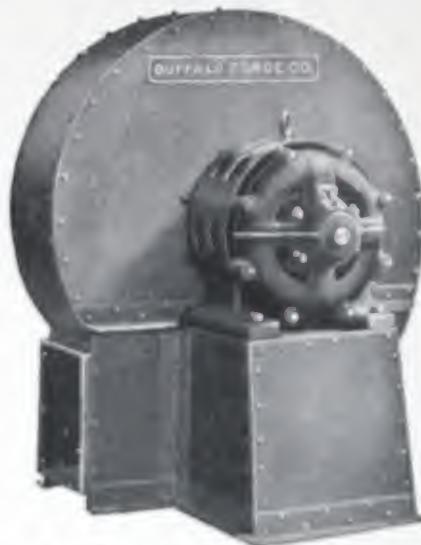
Single Standard Steel Plate Mill Exhausters with Open Wheel. Different Suction Pipe Areas and Velocities

Note. Tables are computed with 200 feet of suction and discharge piping and a collector. The diameter of main discharge pipe is in each instance assumed of same area as the fan outlet. For each additional 10 feet of suction or discharge piping, the speed should be increased approximately one per cent and the power will be increased approximately three per cent. If a collector and elbows are included in the system, the length of pipe to which they are equivalent must be added to the actual length, in order to determine the total equivalent operating length from which speed and power may be figured. If the total operating length is less than 200 feet, the speed should be decreased approximately one per cent for each 10 feet and the power will be decreased approximately three per cent. For double fans, power and air handled will be doubled, speeds the same as single fans.

Standard Steel Plate Mill Exhausters Open Wheel

SIZE	Exhauster			VELOCITY THROUGH BRANCH SUCTION PIPES IN FEET PER MINUTE																	
	Diameter	Area Sq. In.	Suction Branches	2500			3000			3500			4000			4500					
				Area Sq. In.	Equivalent Diameter	A. P. M.	R. P. M.	H. P.	A. P. M.	R. P. M.	H. P.	A. P. M.	R. P. M.	H. P.	A. P. M.	R. P. M.	H. P.				
25"	10"	79	50	875	1525	.79	1050	1830	1.36	1225	2135	2.15	1400	2440	3.22	1575	2745	4.58	1750	3050	6.29
		79	10"	1362	1490	1.06	1635	1780	1.80	1910	2085	2.90	2180	2355	4.33	2450	2680	6.15	2720	2980	8.45
		113	12"	1965	1575	1.63	2360	1890	2.80	2750	2205	4.42	3150	2520	6.62						
30"	12"	113	79	1362	1185	1.03	1635	1421	1.79	1910	1660	2.84	2180	1898	4.23	2450	2135	6.05	2720	2370	8.30
		113	12"	1965	1188	1.38	2360	1425	2.38	2750	1663	3.80	3150	1900	5.65	3540	2138	8.02	3940	2375	11.00
		154	14"	2660	1246	1.97	3190	1495	3.40	3720	1745	5.41	4250	1992	8.07						
35"	14"	154	113	1965	973	1.33	2360	1166	2.28	2750	1360	3.62	3150	1555	5.42	3540	1750	7.75	3940	1943	10.60
		154	14"	2660	982	1.73	3190	1178	2.98	3720	1375	4.75	4250	1570	7.05	4780	1769	10.00	5320	1965	13.85
		201	16"	3463	1025	2.35	4160	1230	4.06	4890	1435	6.45	5540	1640	9.65	6225	1845	13.70			
40"	16"	201	154	2660	820	1.65	3190	984	2.84	3720	1148	4.50	4250	1310	6.70	4780	1475	9.58	5320	1638	13.00
		201	16"	3463	833	2.10	4160	1000	3.64	4890	1167	5.73	5540	1333	8.62	6225	1500	12.35	6930	1667	16.9
		254	18"	4430	872	2.85	5310	1045	4.90	6200	1220	7.85	7080	1394	11.72	7960	1568	16.5			
45"	18"	254	201	3463	705	1.97	4160	846	3.41	4890	987	5.41	5540	1128	8.10	6225	1289	11.50	6930	1440	15.8
		254	18"	4430	723	2.56	5310	867	4.42	6200	1010	7.00	7080	1155	10.50	7960	1300	15.0	8850	1443	20.5
		314	20"	5450	756	3.36	6550	907	5.80	7650	1058	9.20	8730	1210	13.80	9820	1360	19.6	10900	1511	26.9
50"	20"	314	254	4430	622	2.42	5310	746	4.19	6200	870	6.62	7080	995	9.90	7960	1119	14.05	8850	1242	19.4
		314	20"	5450	556	2.86	6550	667	4.95	7650	779	7.81	8730	890	11.70	9820	1000	16.7	10900	1275	24.2
		380	22"	6600	665	3.86	7920	798	6.70	9220	931	10.55	10570	1064	15.9	11890	1198	22.6	13200	1330	31.0
55"	22"	380	314	5450	556	2.86	6550	667	4.95	7650	894	8.32	8730	1020	12.45	9820	1148	17.6	10900	1200	28.3
		380	22"	6600	572	3.54	7920	686	6.10	9220	801	9.75	10570	915	14.5	11890	1030	20.6	13200	1143	28.3
		452	24"	7850	594	4.45	9450	713	7.72	11000	831	12.30	12550	950	18.2	14150	1069	28.0	15750	1188	35.8
60"	24"	452	380	6600	500	3.32	7920	600	5.75	9220	700	9.15	10570	800	13.65	11890	900	19.5	13200	1000	26.5
		452	24"	7850	514	4.00	9450	616	6.95	11000	719	11.00	12550	822	16.5	14150	925	23.5	15750	1028	32.1
		531	26"	9190	420	4.39	11100	504	7.55	12900	588	12.00	14700	671	18.0	16500	756	25.6	18400	840	35.0
70"	28"	616	531	9190	433	5.30	12800	520	9.18	14950	606	14.50	17100	692	21.6	19200	779	30.8	21400	865	42.0
		616	28"	10650	433	5.30	12800	536	11.00	17150	625	17.30	19600	715	26.0	22100	805	37.1	24600	894	50.7
		707	30"	12250	447	6.32	14700	536	11.00	17150	715	26.0	22100	612	32.0	28300	689	45.8	31500	765	62.6
80"	32"	804	707	12250	360	5.56	14700	433	9.70	17150	505	15.35	19600	576	22.9	22100	649	32.5	24600	720	44.5
		804	32"	13900	369	6.55	16700	443	11.35	19500	516	18.00	22200	590	26.8	25000	664	38.0	27800	738	52.4
		908	34"	15750	383	7.85	18900	459	13.50	22100	536	21.50	25200	612	32.0	28300	689	45.8	31500	765	62.6

Slow Speed Electric Mill Exhausters



Motor Driven Slow Speed Mill Exhauster

Slow speed in itself by no means insures higher efficiency in a fan. It does, however, decrease the wear and tear and vibration, so that when efficient design requires a lower speed, the resulting product is doubly desirable.

Standard Mill Exhausters are built for capacity and low cost. The Buffalo Slow Speed Mill Exhausters are built for efficiency, which, in fans used for blow pipe exhaust systems, require certain proportions for the wheels and housings, shape of blades, etc. The fans are necessarily much larger, heavier, and more expensive than slow speed mill exhausters of other makes, in which speed reduction alone is the aim, at the expense of power. With this Buffalo fan, power saving is the first thought, and speed reduction incidental. A guaranteed saving of at least twenty percent in power is assured, and a speed one-third less than any standard mill exhauster of the same capacity.

The arrangement shown, with blast wheel overhung on the motor shaft, is the customary one, avoiding multiplicity of bearings, and involving less strain on the motor bearings than the pull of a belt. For larger sizes it is sometimes preferred to use the regular bearing stand of a belted fan, extending the shaft to receive a coupling, the motor being mounted on a concrete base.

Buffalo

Speed and Power Requirements

Single Slow Speed, High Efficiency Mill Exhausters with Flanged Wheel

Different Suction Pipe Areas and Velocities

Note: Tables are computed with 200 feet of suction and discharge piping and a collector. The diameter of main discharge pipe is in each instance assumed of same area as the fan outlet. For each additional 10 feet of suction or discharge piping, the speed should be increased approximately one per cent and the power will be increased approximately three per cent. If a collector and elbows are included in the system, the length of pipe to which they are equivalent must be added to the actual length, in order to determine the total equivalent operating length from which speed and power may be figured. If the total operating length is less than 200 feet, the speed should be decreased approximately one per cent for each 10 feet and the power will be decreased approximately three per cent. For double fans, power and air handled will be doubled, speeds the same as single fans.

Slow Speed P. M. X. Fans (Flanged Wheel)

SIZE	Exhauster			VELOCITY THROUGH BRANCH SUCTION PIPES IN FEET PER MINUTE																	
	Diameter	Inlet	Outlet	Area Sq. In.	Suction Branches		2500		3000		3500		4000		4500		5000				
					Area Sq. In.	Equivalent Diameter	A. P. M.	R. P. M.													
25"	10"	79	81	50	875	1056	0.70	1050	1270	1.22	1225	1480	1.93	1400	1690	2.87	1575	1900	4.10		
				79	10 ^{1/2}	10 ^{1/2}	1362	990	0.85	1635	1188	1.46	1910	1385	2.32	2180	1582	3.47	2450	1780	4.92
				113	12 ^{1/2}	12 ^{1/2}	1965	1010	1.21	2360	1210	2.09	2750	1410	3.30	3150	1612	4.92	2720	1980	6.80
30"	12 ^{1/2} "	123	116	79	10 ^{1/2}	10 ^{1/2}	1362	817	0.90	1635	980	1.55	1910	1142	2.46	2180	1305	3.68	2450	1470	5.25
				113	12 ^{1/2}	12 ^{1/2}	1965	783	1.08	2360	940	1.87	2750	1095	2.96	3150	1252	4.45	3540	1409	6.30
				154	14 ^{1/2}	14 ^{1/2}	2660	800	1.46	3190	960	2.54	3720	1120	4.02	4250	1280	6.00		3940	1565
35"	14 ^{1/2} "	160	157	113	12 ^{1/2}	12 ^{1/2}	1965	660	1.13	2360	792	1.95	2750	924	3.10	3150	1054	4.60	3540	1187	6.52
				154	14 ^{1/2}	14 ^{1/2}	2660	646	1.35	3190	775	2.32	3720	905	4.70	4250	1032	5.50	4790	1161	7.80
				201	16 ^{1/2}	16 ^{1/2}	3490	658	1.75	4200	790	3.04	4890	921	4.80	5540	1052	7.15	6280	1185	10.25
40"	16 ^{1/2} "	218	206	154	14 ^{1/2}	14 ^{1/2}	2660	551	1.36	3190	661	2.34	3720	772	3.72	4250	882	5.55	4790	993	7.90
				201	16 ^{1/2}	16 ^{1/2}	3490	547	1.63	4200	656	2.80	4890	766	4.49	5540	875	6.65	6280	985	9.50
				254	18"	18"	4430	560	2.14	5310	672	3.69	6200	783	5.81	7080	895	8.70	7980	1008	12.40
45"	18 ^{1/2} "	272	258	201	16 ^{1/2}	16 ^{1/2}	3490	474	1.63	4200	569	2.81	4890	664	4.45	5540	758	6.65	6280	853	9.50
				258	18 ^{1/2}	18 ^{1/2}	4430	474	1.95	5310	569	3.35	6200	664	5.32	7080	758	7.97	7980	853	11.40
				314	20"	20"	5450	485	2.50	6550	582	4.31	7650	678	6.85	8730	775	10.20	9820	872	14.5
50"	20 ^{1/2} "	335	320	254	18 ^{1/2}	18 ^{1/2}	4430	415	1.95	5310	498	3.35	6200	581	3.35	7080	664	7.93	7980	746	11.30
				320	20 ^{1/2}	20 ^{1/2}	5450	416	2.30	6550	500	6.98	7650	583	6.30	8730	667	9.45	9820	750	13.35
				380	22"	22"	6600	427	2.88	7920	513	5.00	9250	595	7.90	10570	684	11.80	11890	769	16.8
55"	22 ^{1/2} "	406	387	314	20 ^{1/2}	20 ^{1/2}	5450	369	2.26	6550	443	3.91	7650	516	6.20	8730	590	9.28	9820	665	13.25
				380	22 ^{1/2}	22 ^{1/2}	6600	371	2.73	7920	445	4.71	9250	520	7.55	10570	593	11.15	11890	668	16.0
				452	24"	24"	7850	380	3.25	9450	456	5.65	11000	532	8.95	12550	608	13.45	14150	684	19.0
60"	24 ^{1/2} "	480	460	380	22 ^{1/2}	22 ^{1/2}	6600	332	2.64	7920	399	4.58	9250	465	7.25	10570	532	10.80	11890	598	15.5
				452	24 ^{1/2}	24 ^{1/2}	7850	335	3.10	9450	403	5.40	11000	470	8.55	12550	537	12.70	14150	604	18.1
				531	26"	26"	9250	343	3.70	11100	411	6.40	12900	450	10.20	14700	549	15.2	16500	617	21.6
70"	28 ^{1/2} "	649	621	531	26"	26"	9250	275	3.37	11100	330	5.81	12900	385	9.25	14700	440	13.92	16500	495	19.7
				616	28"	28"	10650	279	3.96	12800	335	6.88	14950	391	11.00	17100	447	16.4	19200	503	23.3
				707	30"	30"	12230	286	4.70	14700	342	8.09	17100	400	13.00	19600	457	19.2	22100	514	27.3
80"	32 ^{1/2} "	840	408	707	30"	30"	12250	236	4.29	14700	284	7.45	17100	330	11.75	19600	378	17.7	22100	425	25.0
				804	32"	32"	13900	240	4.92	16700	285	8.52	19500	336	13.50	22200	384	20.2	25000	432	28.8
				908	34"	34"	15750	245	5.75	18900	294	10.00	22100	343	15.90	25200	392	23.6	28300	441	33.6

Buffalo

Steel Pressure Blowers (Type P)

Buffalo Steel Pressure Blowers were designed particularly to meet the requirements of cupola and forge service. For this reason the shells are made of cast iron and poured in one piece. This method prevents the leakage that is present with a split shell operating under the high pressure required for this class of work.

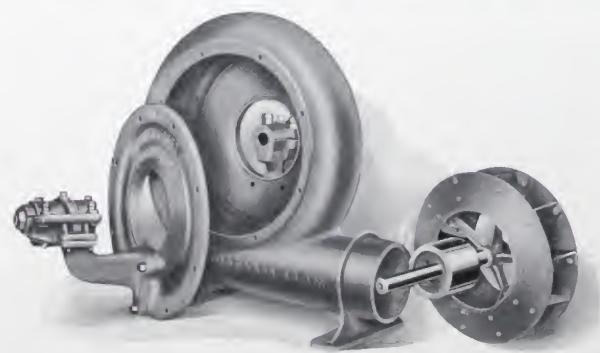
The side plates are removable, giving easy access to the interior and allow the blast wheel and shaft to be removed without trouble.

The fan wheel has 10 flat blades with a slight backward curve. The blades are riveted to two heavy steel plate flanges and every alternate blade is riveted to the arms of a malleable iron spider. All Buffalo fan wheels from the smallest to the largest are carefully balanced and tested before leaving the plant. This assures smooth running and lack of vibration.

Fan and motor are both bolted to the same cast-iron subbase, providing a compact, self-contained outfit. Motor and blast wheel may be connected by coupling or wheel may be overhung on motor shaft.



Motor Driven Steel Pressure Blower (Type P)



Showing how center plate may be removed and wheel pulled out on shaft, through opening in side

Bearings are ring-oiling with reservoirs having suitable capacity for a month's run. Journals are extra long and lined with the best babbitt metal. Bearings are mounted on rigid arms or brackets and babbitted in position, making lack of alignment absolutely impossible.

BUFFALO ELECTRIC FANS



Four No. 12 Steel Pressure Blowers for Main Drive for Sewing Cupolas

Speeds, Capacities and Horsepowers of Standard Steel Pressure Blowers
Static Pressure in Ounces

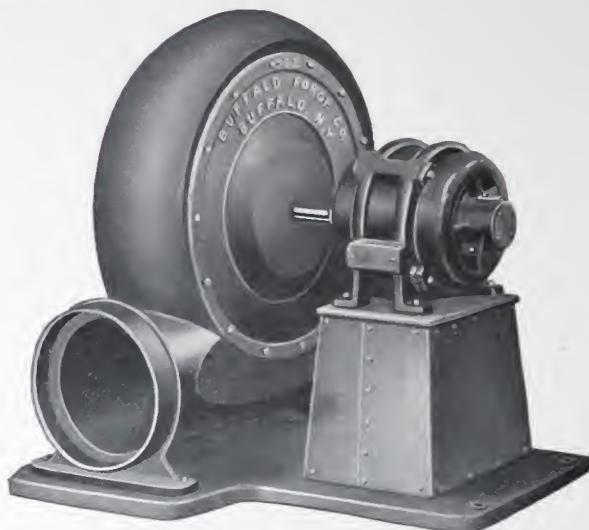
No. of Blower	4 Oz.			6 Oz.			8 Oz.		
	R.P.M.	Capacity	H.P.	R.P.M.	Capacity	H.P.	R.P.M.	Capacity	H.P.
3	3950	565	1.25	4064	740	1.40	4180	950	1.71
4	3,530	641	1.32	3,640	821	1.70	3,750	980	2.11
5	2940	670	1.47	3,054	821	1.70	3,170	980	2.11
6	2550	880	1.84	3115	1070	2.52	3280	1240	3.42
7	2250	1045	2.27	2765	1270	2.15	2930	1470	3.46
8	2050	1570	3.43	2510	1920	3.28	2780	2220	3.96
9	1840	2235	4.84	2245	2720	6.87	2502	3150	13.7
10	1370	3250	7.08	1690	3990	12.0	1922	4700	20.0
11	1140	4010	8.74	1480	4910	16.1	1645	5600	24.7
11 ^{1/2}	967	4500	10.1	1110	5400	18.4	1280	6200	29.5
12	930	5210	11.2	1130	6280	20.4	1310	7000	32.0
	10 Oz.			12 Oz.			14 Oz.		
6	4000	1,082	7.30	4280	1,315	9.9	4755	1,600	14.7
7	3,600	1,040	8.90	3,880	1,290	11.7	4,310	1,520	22.2
8	3,225	2,480	10.8	3,525	2,705	17.0	3,950	3,020	26.7
9	2880	3,500	19.0	3,155	3,925	29.0	3,610	4,220	31.4
10	2160	5,125	27.8	2,590	5,600	36.5	2,945	6,000	46.1
11	1800	6,220	34.4	1,970	6,800	43.0	2,125	7,400	56.7
11 ^{1/2}	1425	7,130	45.2	1,525	7,225	52.0	1,680	8,000	61.8
12	1400	8,200	48.0	1,585	8,655	58.4	1,730	9,600	73.5

Buffalo

"B" Volume Blowers and Exhausters

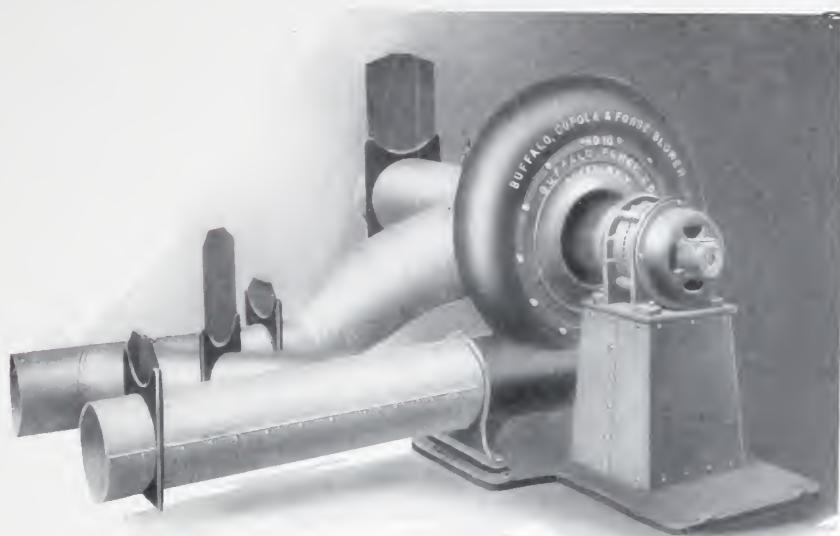
These fans are used for various classes of service where pressures of from 1 to 6 ozs. are required, such as forced draft to small boilers, malleable iron furnaces and forge fires. The exhausters are used for removing smoke and gases from forge fires, serving small emery and buffing wheel installations, etc.

These fans have a cast iron peripheral shell, which prevents all leakage at the point of highest pressure. This leakage is one of the serious objections to a split shell. The side plates are made of cast iron and are removable, permitting easy access to the interior, and allow the blast wheel and shaft to be removed without trouble.

**"B" Volume Exhauster Bottom Horizontal Discharge****"B" Volume Exhauster—Up Blast Discharge**

Except on the larger sizes the usual practice is to mount the blast wheel immediately on the extended motor shaft as shown in the illustration. This eliminates bearings on the fan, which, if used, are usually exposed to dust and subject to rapid wear. It makes a very compact arrangement and the weight of the wheel is less than the belt pull on a belted unit.

BUFFALO ELECTRIC FANS



Buffalo Motor Driven Exhauster Arranged for Mine Ventilating Service to either Blow into or Exhaust from, by Reversing the Blast Gates

Rated Capacities of "B" Volume Blowers and Exhausters (Types BB and BE)

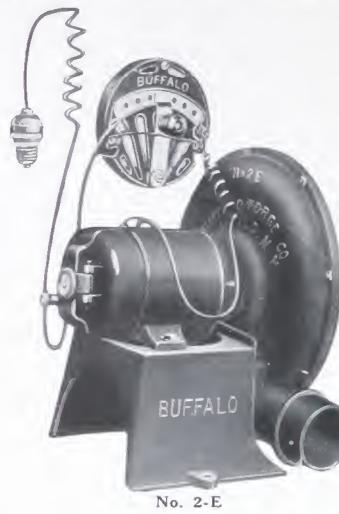
Total Pressure in Ounces

No. of Blower	½ Oz.			1 Oz.			1½ Oz.			2 Oz.		
	R.P.M.	Cap.	H.P.									
1	1693	104	.02	2396	148	.07	2935	181	.14	3393	210	.23
2	1397	264	.06	1976	374	.19	2420	458	.34	2800	534	.59
3	980	438	.10	1387	621	.31	1695	760	.57	1965	888	.99
4	859	585	.13	1216	828	.41	1490	1015	.76	1724	1174	1.30
5	776	837	.19	1098	1185	.59	1345	1450	1.09	1556	1688	1.87
6	635	1185	.26	898	1677	.84	1100	2055	1.54	1274	2382	2.65
7	582	1372	.31	823	1941	.97	1010	2380	1.78	1168	2752	3.06
8	499	1986	.44	706	2810	1.41	865	3440	2.58	1000	3953	4.43
9	411	3299	.73	581	4668	2.33	710	5710	4.28	824	6641	7.30
10	349	4488	1.00	494	6350	3.18	605	7780	5.82	702	9003	9.90
	2½ Oz.			3 Oz.			4 Oz.			6 Oz.		
1	3795	234	.29	4169	258	.38	3977	753	1.37	3436	1551	3.86
2	3130	592	.75	3437	651	.96	2794	1261	2.29			
3	2195	983	1.23	2414	1090	1.62						
4	1925	1310	1.65	2119	1441	2.14	2452	1667	3.03	3010	2051	5.13
5	1740	1875	2.36	1912	2071	3.08	2212	2397	4.36	2721	2948	7.37
6	1425	2650	3.34	1563	2923	4.33	1809	3382	6.15	2225	4160	10.40
7	1300	3080	3.86	1434	3377	5.00	1660	3908	7.10	2041	4806	12.00
8	1120	4450	5.60	1229	4888	7.24	1422	5656	10.20	1748	6957	17.4
9	920	7400	9.28	1012	8150	12.10	1171	9431	17.1	1440	11599	28.9
10	782	10050	12.60	861	11050	15.00	966	12786	21.9	1225	15726	37.0

Buffalo

Buffalo Electric Forge Blowers

(Variable Speed Type)



No. 2-E

These small blowers are used for a great variety of purposes, such as blowing furnaces, church organs and forge fires; removing scale from power hammers and chips in metal and woodworking operations, etc.; or for exhausting from small grinding and buffing wheels used in a variety of trades.

The motor is of such design that it will operate efficiently and with equal satisfaction on any circuit, either direct or alternating current, 25, 40, 50, or 60 cycles.

We furnish wire and plug with each outfit, and they can be installed without expense, simply by screwing the plug into a lamp socket.

The large diameter and superior design of the fan case, and long blades in blast wheel gives minimum friction, therefore lowest power consumption. The oil chamber is large and the running parts self-oiling. The oil cups cannot be knocked off. The brushes are from two to three times larger than the ordinary, to avoid frequent replacing.

A speed regulator is furnished, giving six variations of blast, from the lightest to the strongest. When ordering, simply state if for 110 or 220 volts.

The fan case is regularly arranged for blowing and will be shipped this way unless specifically stated that it is wanted for exhaust service.



Buffalo Steel Plate Forge Equipped with Buffalo Electric Forge Blower

Variable Speed Motors

	No. 2-E	No. 2-EH	No. 3-E
List Price, 110-Volts	\$40.00	\$56.00	\$72.00
List Price, 220-Volts	\$40.00	\$56.00	\$72.00
Weight	50 lbs.	55 lbs.	100 lbs.
R. P. M.	2600	3400	3400
Diameter of Outlet	3 in.	3 in.	4 in.
Total Height	15 in.	15 in.	15 in.
Capacity, Air per Minute	76 cu. ft.	150 cu. ft.	200 cu. ft.
Pressure	1 1/2 oz.	2 1/2 oz.	1 1/2 oz.

"Buffalo"

BUFFALO ELECTRIC FANS

Buffalo Electric Forge Blowers

(Constant Speed Type)

These blowers are made in five sizes, handling air quantities from 75 A.P.M. to 500 A.P.M. The application of these units is as wide as that of the variable speed type shown on the opposite page.

The outfits from size 2-E to 3-E inclusive are equipped with wire and plug ready for connecting to lighting circuit. The larger sizes, 4-E and 5-E, cannot be connected to lighting circuits and require special wiring.

A blast gate is furnished with each blower up to and including the 4-E. The 4-E and smaller outfits are carried in stock for the following current characteristics:

(1) Direct current circuit 110 to 220 volts.

(2) Alternating current 110 to 220 volts, 60 cycle, single phase.

The 5-E Blower is particularly adapted for supplying air to oil burning and gas burning furnaces at from 8 to 10 ozs. pressure.

The 6-E is suitable for serving small cupolas when equipped with 3400 rev. motor.

The shells are reversible and convertible from right to left hand, on 4½-E and larger.

Subbases designed to take any make of motor. Standard motors requiring no special shafts can be used.



No. 5-E



No. 4-E

Constant Speed Motors	No. 2-E	No. 2-EH	No. 3-E	No. 4-E	PRICES WITHOUT MOTORS			
					No. 4½-E	No. 5-E	No. 6-E	
List Price, A. C. Motor.....	\$40.00	\$56.00	\$80.00	\$100.00	\$45.00	\$50.00 (without motor)	\$80.00	
List Price, D. C. Motor.....	\$40.00	\$56.00	\$80.00	\$100.00	\$45.00	\$50.00 (without motor)	\$80.00	
Weight, complete.....	50 lbs.	55 lbs.	90 lbs.	110 lbs.	60 lbs.	80 lbs.	100 lbs.	
Height over all.....	15 in.	15 in.	17 in.	20 in.	22 in.	28 in.	32 in.	
Diameter of Outlet.....	3 in.	3 in.	4 in.	5 in.	5 ½ in.	5 ½ in.	5 ½ in.	7 in.
A. C. Motor, Cycles.....	60	60	60	60				
D. C. Motor, R. P. M.....	1800	3000	3400	3400				
A. C. Motor, R. P. M.....	1700	3400	3400	3400	1720-3400	1700	3400	1720-3400
Capacity, Air per Minute.....	75 cu. ft.	150 cu. ft.	225 cu. ft.	300 cu. ft.	200-400	250 cu. ft.	500 cu. ft.	625-1250
Pressure.....	1 oz.	2 ½ oz.	2 ½ oz.	2 ½ oz.	1 ¼ oz.-5 oz.	2 ½ oz.	10 oz.	4 oz.-16 oz
Motor Horsepower.....	1/30	1/8	1/4	1/2	1/4-1	1/2	3	3-10

Buffalo

BUFFALO ELECTRIC FANS



No. 1

No. 2

No. 3

Baby Conoidal Fans

The Baby Conoidal fan is of the high efficiency multiblade type with blast wheel of the same design as the Niagara Conoidal (Type N) which has met with such marked success. Housing is cast iron and can be swung around to discharge in any desired direction. This fan furnishes a large volume of air at a relatively low pressure with moderate speed. The wheel is accurately balanced, assuring a smooth-running, noiseless machine.

It is unexcelled for all kinds of drying and cooling purposes, for supplying fresh, cool air to offices, homes, staterooms, telephone booths, etc., and for exhausting smoke, fumes and foul air from kitchens, restaurants, lavatories, etc.

Cord and plug are furnished with No. 3 and smaller; no expense for installing, simply attach to an electric light socket. Outfits are furnished with 110 or 220 Volt D. C. motors and 110 or 220 Volt single phase, 60 cycle, A. C. motors. Nos. 4, 5 and 6 are also furnished with 110 or 220 Volt, two or three phase, 60 cycle motors.

The six sizes cover a wide range of capacity as indicated by the tables on the opposite page.



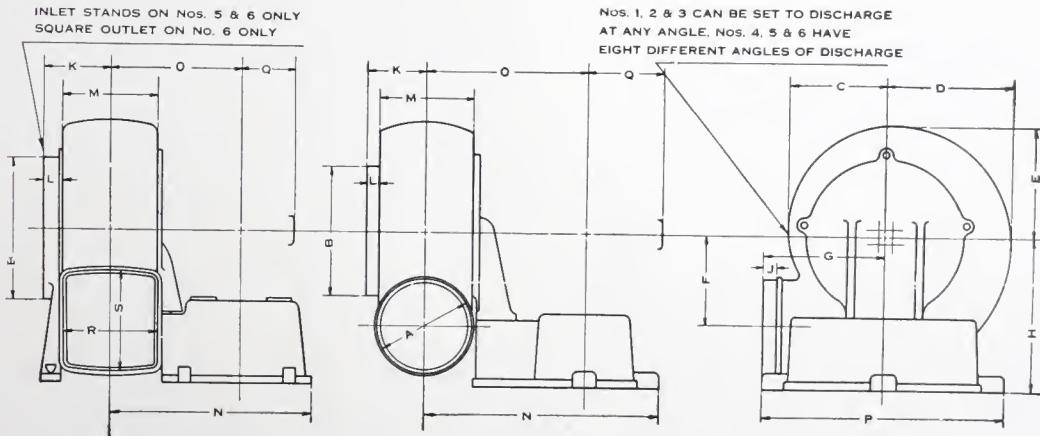
No. 6 Baby Conoidal Fan

BUFFALO ELECTRIC FANS

Buffalo "Baby Conoidal" Fans

Number of Fan	Revolutions per Minute	Air per Minute Cubic Feet	PRESSURE		Horse Power	Horse Power Motor	Shipping Weight Lbs.	LIST PRICES		
			Static Inches Water	Total Inches Water				D. C. 110-220 Volt	A. C. 60-Cycle Single Phase 110-220 Volt	A. C. 60 Cycle 2 or 3 Phase 110-210 Volt
1	1740	80	0.17	0.43	0.012	$\frac{1}{30}$	40	\$ 50	\$ 50	\$
2	1740	135	0.40	0.60	0.030	$\frac{1}{8}$	55	66	70	
3	1140	260	0.38	0.54	0.050	$\frac{1}{8}$	110	100	110	
	1740	400	0.88	1.25	0.180	$\frac{1}{4}$	115	100	110	
4	870	700	0.50	1.72	0.14	$\frac{1}{4}$	450	225	220	215
	1140	915	0.86	1.23	0.31	$\frac{1}{2}$	475	250	230	215
	1740	1400	2.00	2.86	1.10	* $1\frac{1}{2}$	500	280	*280	240
5	690	1080	0.49	0.71	0.22	$\frac{1}{2}$	625	310	250	290
	870	1360	0.78	1.13	0.41	$\frac{3}{4}$	650	335	320	300
	1140	1785	1.35	1.94	0.90	$1\frac{1}{2}$	675	360	360	310
6	690	1855	0.71	0.98	0.51	1	850	440	520	390
	870	2340	1.13	1.56	1.00	2	875	540	535	400
	1140	3065	1.94	2.67	2.26	3	900	570	550	415

* 2 H. P. Motor Used.



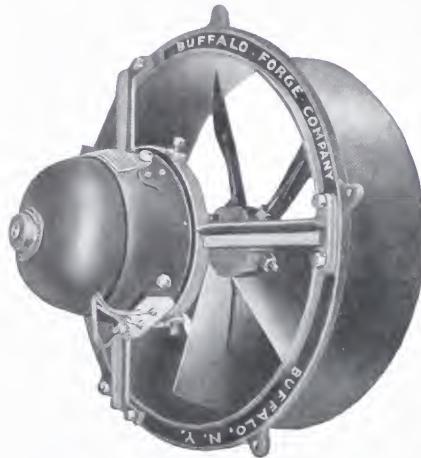
Dimensions in Inches

Size	A	B	C	D	E	F	G	H	J	K	L	M	N	O	P	Q	R	S
1	3	4	3	$3\frac{7}{8}$	$3\frac{1}{8}$	$2\frac{1}{4}$	$3\frac{3}{4}$	$4\frac{3}{4}$	$\frac{7}{16}$	$1\frac{1}{8}$	$\frac{3}{8}$	$2\frac{7}{8}$	$6\frac{5}{8}$	5	$7\frac{1}{2}$	3		
2	4	$5\frac{1}{2}$	$3\frac{1}{4}$	$4\frac{2}{9}$	$4\frac{3}{2}$	$4\frac{9}{16}$	$3\frac{3}{4}$	$4\frac{3}{4}$	$6\frac{1}{4}$	$2\frac{1}{2}$	$\frac{1}{8}$	$3\frac{7}{8}$	$8\frac{1}{8}$	$6\frac{1}{8}$	$8\frac{3}{4}$	3		
3	$5\frac{3}{4}$	$7\frac{3}{4}$	$5\frac{1}{8}$	$7\frac{1}{16}$	$6\frac{1}{8}$	$5\frac{1}{16}$	$6\frac{1}{2}$	$8\frac{3}{4}$	$3\frac{3}{4}$	$3\frac{3}{16}$	$\frac{1}{16}$	$5\frac{1}{4}$	$10\frac{1}{8}$	$7\frac{1}{8}$	$10\frac{1}{4}$	5		
4	$8\frac{3}{4}$	$11\frac{3}{8}$	$7\frac{9}{16}$	$10\frac{7}{16}$	9	$7\frac{5}{8}$	10	13	2	6	2	8						
5	$10\frac{1}{8}$	$14\frac{1}{4}$	$9\frac{5}{8}$	$12\frac{7}{8}$	$11\frac{1}{8}$	$9\frac{5}{8}$	11	16	2	$7\frac{11}{16}$	$2\frac{3}{8}$	$9\frac{1}{8}$						
6									2	$8\frac{3}{8}$	$2\frac{1}{2}$	$11\frac{3}{4}$				$11\frac{5}{8}$	$12\frac{3}{8}$	

"Buffalo"

Disc Fans (Type D)

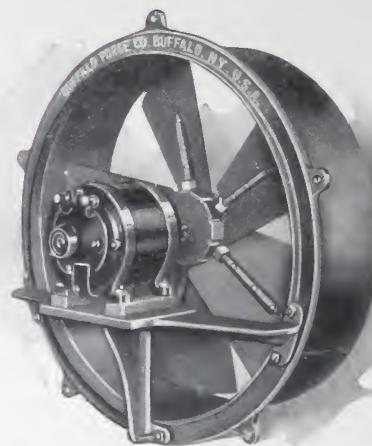
Buffalo disc fans (Type D) are designed to operate against slight resistances. A fan of this type should never be used in connection with a system of ducts. This fan makes an ideal ventilating unit when set into the wall and discharging directly into a room or exhausting from it without obstruction.



This Style Made in Sizes 36-in., and Larger

Every part of this fan is designed with a view to reducing maintenance and repairs to a minimum. This is a decided advantage, inasmuch as these fans are usually located in almost inaccessible places and are apt to receive little or no attention under ordinary operating conditions.

The range of these fans is shown in the table below.



This Style Made in Three Sizes—18-in., 24-in., and 30-in.

Size of Fan	Velocity Through Wheel	Cubic Feet of Air per Minute	0.1" S.P.		0.2" S.P.		0.3" S.P.		0.4" S.P.		0.5" S.P.		0.75" S.P.	
			R.P.M.	H.P.	R.P.M.	H.P.								
18"	500	882	739	0.051	871	0.104	978	0.163	1060	0.227	1132	0.30	1297	0.50
	1000	1,762	1100	0.142	1267	0.23	1385	0.32	1477	0.41	1558	0.51	1730	0.77
	1400	2,470	1375	0.281	1535	0.40	1670	0.52	1772	0.64	1870	0.76	2045	1.08
	2000	3,530			1966	0.80	2080	1.00	2200	1.15	2290	1.32	2484	1.68
	2600	4,590			2507	1.73	2600	1.92	2693	2.29	2908	2.67		
24"	500	1,570	554	0.091	655	0.185	734	0.29	796	0.41	850	0.53	972	0.88
	1000	3,140	825	0.25	950	0.41	1040	0.57	1108	0.73	1168	0.91	1298	1.38
	1400	4,400	1030	0.50	1150	0.71	1255	0.92	1330	1.14	1402	1.36	1534	1.92
	2000	6,280			1475	1.43	1560	1.77	1650	2.04	1718	2.34	1864	2.99
	2600	8,170			1880	3.08	1950	3.42	2020	4.08	2180	4.76		
30"	500	2,450	444	0.142	524	0.29	588	0.45	635	0.63	680	0.83	777	1.37
	1000	4,910	660	0.39	760	0.64	830	0.89	886	1.14	934	1.42	1039	2.15
	1400	6,880	822	0.78	920	1.11	1000	1.43	1062	1.78	1121	2.12	1227	3.00
	2000	9,810			1180	2.24	1247	2.76	1320	3.19	1373	3.65	1491	4.67
	2600	12,767			1505	4.81	1560	5.35	1615	6.38	1745	7.43		
36"	500	3,535	369	0.21	436	0.42	488	0.65	530	0.92	566	1.20	648	1.98
	1000	7,060	550	0.57	632	0.92	692	1.28	740	1.64	778	2.04	865	3.09
	1400	9,900	687	1.13	765	1.60	837	2.06	888	2.56	935	3.05	1024	4.32
	2000	14,130			981	3.22	1040	3.98	1100	4.60	1145	5.27	1243	6.73
	2600	18,340			1255	6.92	1300	7.70	1348	9.20	1434	10.71		
42"	500	4,808	316	0.28	374	0.57	420	0.89	456	1.24	486	1.63	556	2.69
	1000	9,616	472	0.77	544	1.25	594	1.74	632	2.24	668	2.78	742	4.21
	1400	13,475	588	1.53	656	2.17	718	2.80	760	3.48	802	4.15	876	5.88
	2000	19,232			844	4.37	892	5.43	944	6.25	982	7.17	1066	9.15
	2600	25,025			1074	9.43	1114	10.45	1154	12.50	1246	14.58		
48"	500	6,280	277	0.36	327	0.74	367	1.10	398	1.62	425	2.13	486	3.52
	1000	12,560	412	1.01	475	1.63	520	2.27	554	2.92	584	3.63	649	5.50
	1400	17,600	515	2.00	575	2.84	627	3.67	665	4.56	701	5.42	767	9.68
	2000	25,120			737	5.72	780	7.08	825	8.16	859	9.35	932	11.96
	2600	32,680			940	12.32	975	13.68	1010	16.3	1090	19.0		

Buffalo 16-inch Aero Exhaust Fans



The aeroplane propeller furnishes the model for this small ventilating set. Known to be the best type for displacing free air, it is equally well adapted for use in fans, and enables us to obtain an efficiency hitherto unknown. The Buffalo 16" Aero incorporates all the desirable qualities of the aeroplane propeller. It handles more air with the same consumption of power, it does it quietly, and will keep right on doing it twenty-four hours every day without any possibility of motor trouble.

The motors used are of the enclosed type, and for alternating current there are no brushes, no contact between the rotating parts and the stationary parts except in the bearings, which are of extra large dimensions and which require lubrication only

occasionally. The extreme quietness with which these fans operate at comparatively high speeds is one of their distinguishing features.

They are especially suited for ventilating small offices, dining rooms, kitchens, work shops, bakeries, laundries and other similar buildings where a quiet, efficient, reliable exhaust fan can be used. List prices below include reinforced cord with plug for attaching to lighting circuit. They are carried in stock with motors for 110 and 220 volts direct current, and the same voltages 60 cycle, single phase alternating current, and 25 cycle single phase alternating current. Be sure to give particulars of current when ordering.



Buffalo 16-inch Aero

Kind of Current	R. P. M.	Cubic Feet Per Minute	H. P. Motor	Net Weight	Voltage	Shipping Weight
Dir. Current	1150	1000	1/60	15 lbs.	110 or 220	30 lbs.
60 cycles	1150	1000	1/60	15 lbs.	110 or 220	30 lbs.
25 cycles	1450	1000	1/40	15 lbs.	110 or 220	30 lbs.



